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Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 4 bedroom single family residence on Lot #7 in Knox Haven Subdivision, Iredell County, North Carolina.

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March 20, 2007
Project #: 01-1167
Design By: Rollans Soil & Environmental Services

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: Ryon West Developers

Address: 127 B Promade Dr.
Mooresville, NC 28117
Phone: 704-799-8641
County: Iredell
Location: KNOX HAVEN LOT 7

Source of Wastewater Flow: 4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow: 480
System Flow: 26.24

Design Specifications

Drainfield Size: 270
Loading Rate (gpd/ft.^{2}): 0.3
Depth of Gravel in Trench: NA (PPBPS)
Gravel Size: NA (PPBPS)
Trench Depth: 36 in.
Trench Width: 36 in.
Septic Tank Size: 1000
Pump Tank Size: 1000

Estimated Supply Line Length: 144
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 25.06
Dosing Volume: 154.37
Supply Manifold: N/A
Supply Manifold Length: N/A
Supply Manifold Volume: N/A

Recommended Float Controls: SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel: SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.

Pressure Head: 2 ft.
Friction Head: 2.56
Elevation Head: 6.10
Total Dynamic Head: 12.26

Threaded Union: In Tank
Gate Valves: 1 in Tank
1 per lateral
Check Valves: In Tank
Anti-Siphon Hole: NA
Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services

KNOX HAVEN LOT 7
LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	810
TOTAL LATERAL LENGTH:	270
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	266.6666667
SUPPLY LINE LENGTH:	144
TOTAL DYNAMIC HEAD:	12.26
MANIFOLD SIZE:	N/A
DOSING VOLUME:	154.37
PUMP TANK DRAW DOWN*:	7.4
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	1000

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

KNOX HAVEN LOT 7

Project #: 01-1167

LAYOUT FOR 4 BEDROOM HOME

March 20, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		9.9			100.00		
INSTR. 1			109.90				
HOUSE CNR				4.30	105.60		
P. TANK				6.00	103.90		
1	DARK PINK			4.50	105.40	75	75
2	ORANGE			4.80	105.10	100	100
3	BLUE			4.90	105.00	35	35
4	***BLUE***			***4.90***	***105.00***	***60***	***60***
5	***PINK***			***5.20***	***104.70***	***55***	***55***
6	***PINK***			***5.20***	***104.70***	***55***	***55***
7	***DARK PINK***			***5.40***	***104.50***	***50***	***50***
8	***DARK PINK***			***5.40***	***104.50***	***50***	***50***
9	BLUE			7.10	102.80	30	30
10	PINK			8.00	101.90	47	47
11	DARK PINK			8.60	101.30	42	42
					Total	599	599

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR	TRENCH SYSTEM	DISTRIBUTION
****System***	***270***	***0.3***	***MOD.***	***0.3***	***PPBPS***	***LOW PRESSURE***
Repair	329	0.3	MOD.	0.3	PPBPS	LOW PRESSURE

Notes:

** TBM located top of ground at EIP at corner of lot (see site plan)

**TBM is assumed to be 100'

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

**BS, HI, and FS indicate rod readings

LP PPBPS TAPSHEET -KNOX HAVEN LOT 7

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
4	*BLUE*	*4.90*	*60*	0.156	**0.41**	180	14
5	*PINK*	*5.20*	*55*	0.156	**0.41**	165	13
6	*PINK*	*5.20*	*55*	0.156	**0.41**	165	13
7	*DARK PINK*	*5.40*	*50*	0.156	**0.41**	150	12
8	*DARK PINK*	*5.40*	*50*	0.156	**0.41**	150	12
							64
	total	**feet =**	**270**	**gal/min =**	**26.24**		
			Des. Flow	**480**			
			Pump Run=	**5.88**			
			soil LTAR	**0.3**			
			LTAR +5%	**0.315**			
			LTAR with mod.	**0.6**			
			LTAR with mod.. + 5%	**0.63**			

.156 equals 5/32 inch hole

CALCULATIONS

Location KNOX HAVEN

Project Number 01-1167

Lot No: Lot 7

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	144	ft.
Supply Line Volume	25.056	gal.
Required Feet of Line	266.6667	ft.
Amount of Line from Layout	270	ft.
Gallons per Minute	26.24	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	64	
Dosing Volume	154.37	gal.

Note: Dosing Volume based on 33% of # of panels times 3.6 gal/panel

Tank Draw Down	7.4	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	6.1	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	2.56	ft.
Total Dynamic Head (+15%)	12.26	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42